USR-G800 User Manual

File Version: V1.0.3

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1. Quick Start

USR-G800 router is used to realize the function of connecting to 4G network for users, while users do not need to concern the details, which can work after simple setting. Parameter setting can be achieved through router built-in web page, permanent stored for once setting.

This chapter is introduction of quick get start, we suggest users read this chapter and operate one time according to the instructions, then users will have a systemic understanding for this 4G router product, while users can also choose those interested chapters to read according to their need.

Questions can be submitted to our customer support center: **http://h.usr.cn**

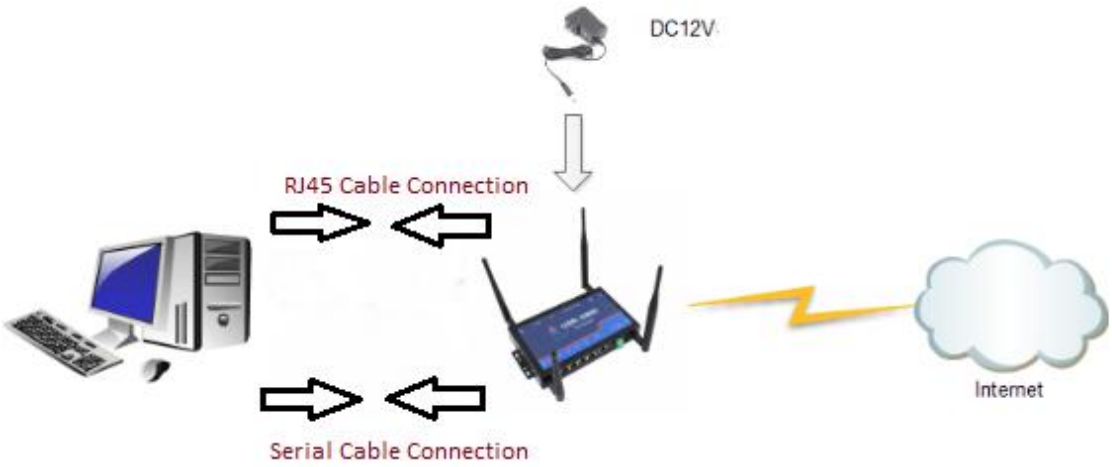
1.1. Test Hardware Environment

As G800 possesses multiple communicating interfaces, we choose the below two functions to test.

- Serial data between PC and G800 in transparent transmission (LAN interface)
- Computer visits Internet through G800 (4G interface)

Connect router's RS232 port with computer's RS232 port through female to female serial extended line, meanwhile, make connection between LAN port with PC by RJ45 cable.

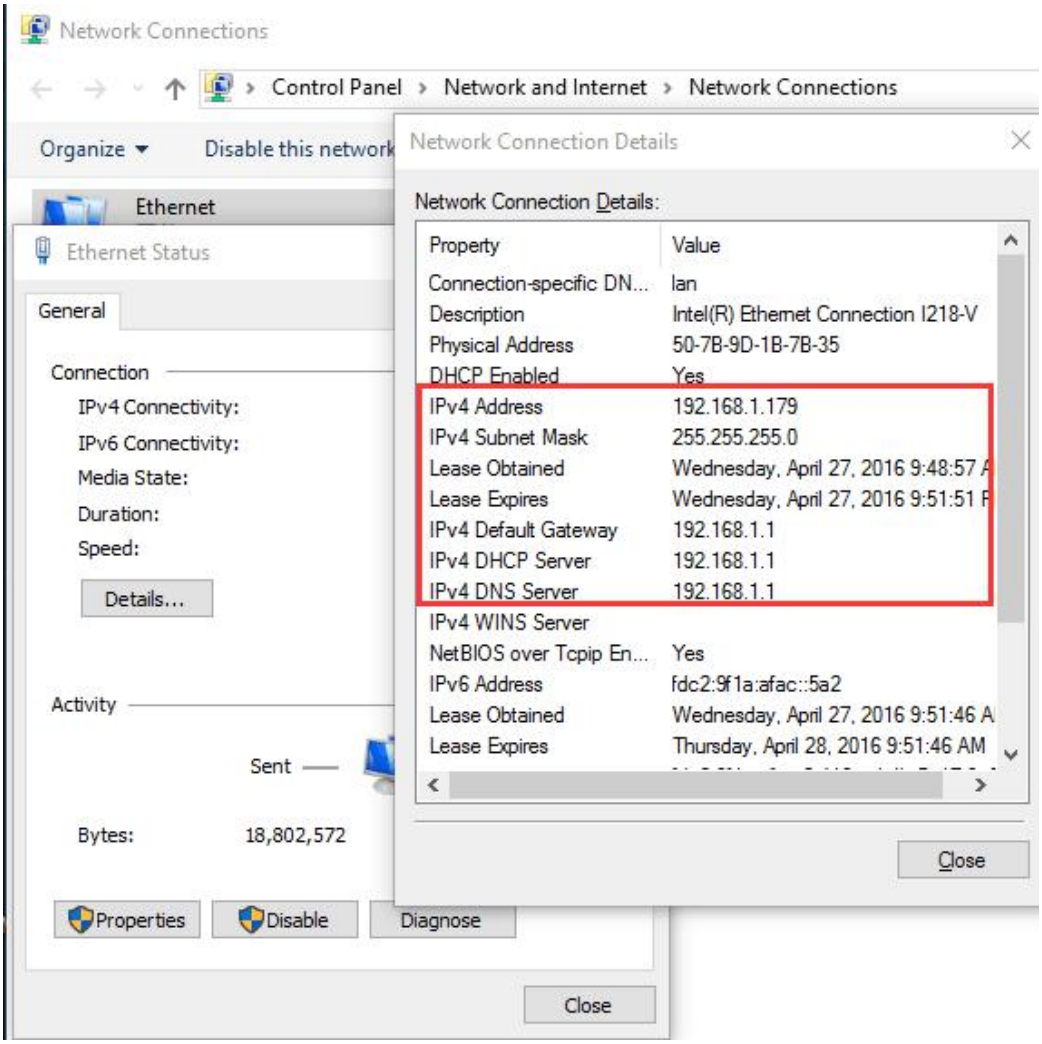
Regarding to connection of serial port, G800's serial port is RS232 level which needs to connect to computer's own RS232 interface, or through USB-RS232 converter to connect to computer (Note: Both of the two types of connection should use female to female cross serial lines), hardware connection is as below drawing:



1.2. Network Connection

Hereinafter USR-G800 module as example:

- Standard power supply is DC 12V
- Please make connection between PC and G800 (anyone of LAN1-LAN4 is ok) through LAN line. At this time, indicating light of USR-G800's corresponding LAN interface start to blink.
- Configure computer network card, choose automatically obtaining IP, at this time, router will distribute a IP address to PC network card.



1.3. Data Transmission Test

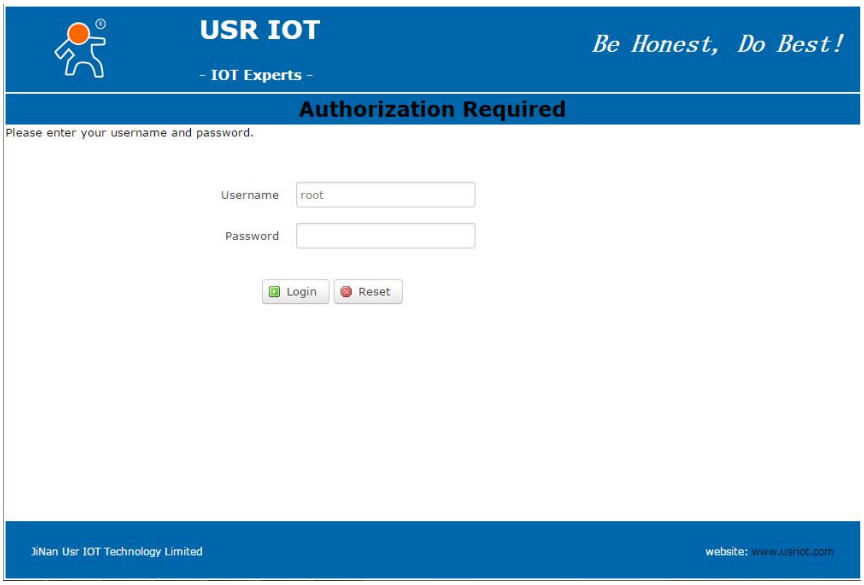
G800 primary parameter:

Parameter	Primary Value
User's Name	root
Password	root
Self IP Address	192.168.1.1
RS232 Default Baud Rate	115200, N, 8, 1
RS232 Default Parity Bit	None
RS232 Default Data Bit	8
RS232 Default Stop Bit	1
Transparent Transmission Work Mode	TCP Server
Transparent Transmission Local Port	8899
Transparent Transmission Teleport	8899
Transparent Transmission Target Address	192.168.1.201

There are two way to configure the USR-G800 router via web page:

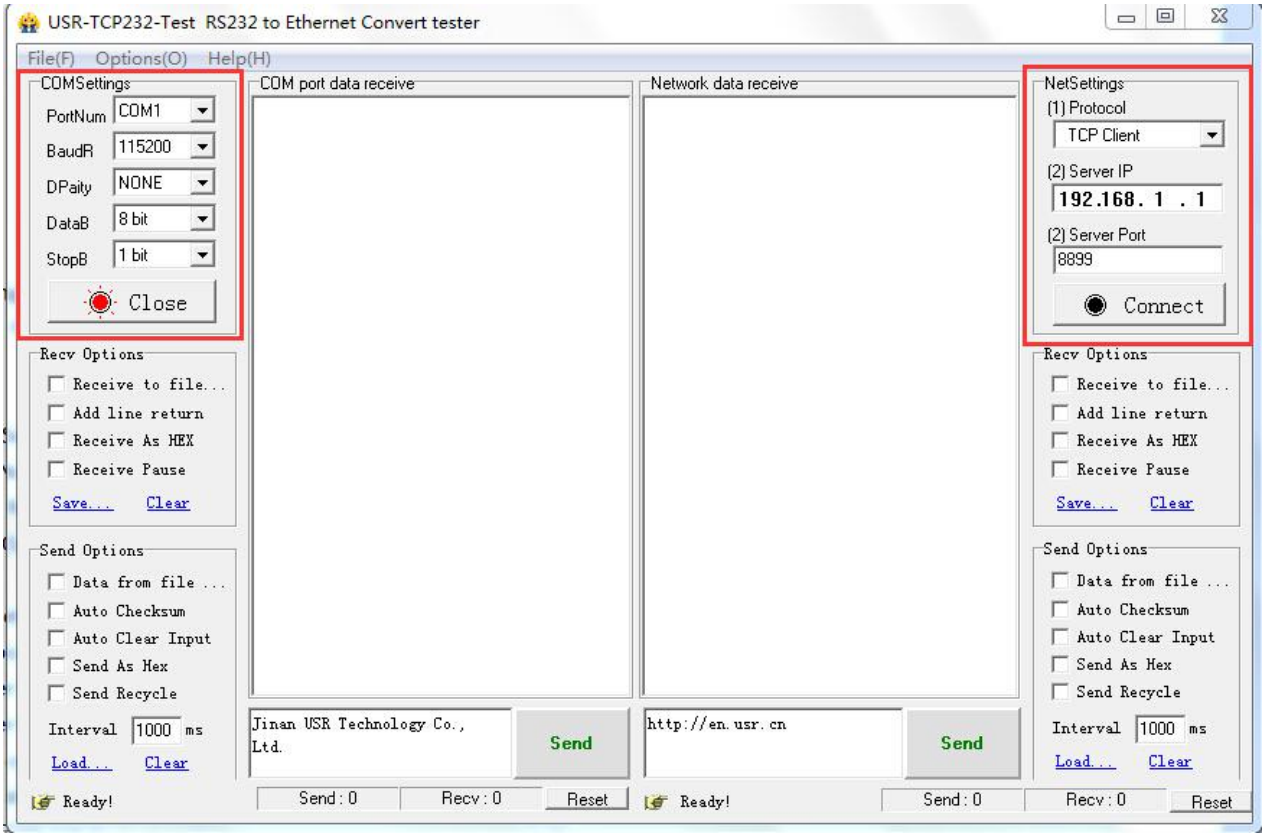
► Through wired cable. Make connection between PC and LAN port of USR-G800. Ensure that you PC IP in the same network segment as USR router. Power on, and then login **http://192.168.1.1**

► WIFI Connection. Search WIFI SSID by your PC and access to "USR-G800-XX".



Testing Software:

Open the testing software “USR-TCP232-Test.exe”, please refer to the following picture:



Com Setting Side:

Port Number: Check the computer’s currently used port number COM4 (find it in device manager)

Baud Rate: 115200 (Default value of G800 router)

Click Open

Net Setting Side:

Protocol: TCP Client (G800 work as TCP server, so PC have to be worked as TCP client)

Server IP:192.168.1.1 (G800’s IP address)

Server Port: 8899

Click connect, if there is no mistake for the above processes, TCP connection can be built.

Click send buttons in the two sides, corresponding data can be received in the opposite side.

At this point, data transmission can be tested between serial port and network:

Data from serial port to network: PC’s serial port->router serial port->router ethernet (wifi) ->PC network

Data from network to serial port: PC network->router ethernet (wifi) ->router serial port->PC serial port

2. Product Brief Introduction

USR-G800 is a kind of 4G wireless router, which provides the settlement for user's device connects to Mobile 4G network. Adopts technical grade high-performance built-in structure of the industry, possesses fairly high applicable advantage for data transmission fields of intelligent furniture, intelligent power grid, personal medical treatment and industrial control.

Support connection of wired WAN interface, LAN interface, WLAN network and Mobile 4G network, also support the function of data transparent transmission from all-the-way serial port to network.

2.1. Product Feature

- Support 4 wired LAN interfaces, 1 wired WAN interface
- Support 1 WLAN wireless local area network
- Support Mini-PCIE interface's 4G communication module (USR-G401t/402tf, the former one supports mobile 2/3/4G networks, the latter one supports Mobile & Unicom 2/3/4G networks and Telecom 4G network)
- Support multiple communication indicating lights
- Transparent data transmission from RS232 to network
- Webpage configuration
- Support a key recovery to factory setting
- LAN port supports 10/100Mbps

2.2. Basic Parameter

USR-G800-41 Basic Parameter

Product Specification		
Item		**Description**
Product Name	USR-G800-41	4G Wireless Router
Wired Ethernet	Wired WAN interface	WAN * 1
	Wired WAN interface	LAN * 4
	Both LAN & WAN interfaces support 10/100Mbps speed， Auto MDI/MDIX	
WIFI	Wireless Standard	802.11b/g/n
	Antenna	WIFI Antenna * 2
4G Module	Interface Type	Mini PCI-E 52PIN
	TD-LTE	3GPP R9 down speed 150Mbps,up speed 50Mbps
		Band38/39
	TD-SCDMA	3GPP R9 down speed 2.8Mbps， up speed 2.2Mbps
		Band34/39
	GSM	Down speed 384kbps，up speed 128kbps
		Band2/3/8
SIM & Antenna	SIM/USIM card	Standard 6-shot SIM card interface，3V/1.8V SIM card
	Antenna	3/4G full frequency antenna * 2
Button	Reload	A key recovery to factory setting
Indicating light	Status indicating light	Power source，WIFI，4G，WAN*1，LAN*4
Serial port	RS232	DB9 pin head，RS232 power level
		Support transparent transmission from serial to Ethernet
Temperature	Working temperature	-20c~70C
	Storing temperature	-40~75C
Moisture	Working moisture	10%~90%
	Storing moisture	5%~90%

USR-G800-41 Basic Parameter

Product Specification

Item		Description
Product Name	USR-G800-42	4G Wireless Router
Wired Ethernet	Wired WAN interface	WAN * 1
	Wired WAN interface	LAN * 4
	Both LAN & WAN interfaces support 10/100Mbps, Auto MDI/MDIX	
WIFI	Wireless Standard	Support 802.11b/g/n
	Antenna	WIFI Antenna * 2
4G Module	TD-LTE	3GPP R9 down speed 150Mbps,up speed 50Mbps
		Band 38/39/40/41
	FDD-LTE	3GPP R9 down speed 150Mbps,up speed 50Mbps
		Band 1/3
	WCDMA	HSPA+ down speed 21 Mbps， up speed 5.76 Mbps
		Band 1/8
	TD-SCDMA	3GPP R9 down speed 2.8Mbps，up speed 2.2Mbps
		Band34/39
	GSM/GPRS/EDGE	Down speed 384kbps，up speed 128kbps
		Band 3/8
SIM & Antenna	SIM/USIM card	Standard 6-shot SIM card interface，3V/1.8V SIM card
	Antenna	3/4G full frequency antenna * 2
Button	Reload	A key recovery to factory setting
Indicating light	Status indicating light	Power source, WIFI, 4G, WAN*1，LAN*4
Serial port	RS232	DB9 pin head, RS232 power level
		Support transparent transmission from serial port to network
Temperature	Working temperature	-20C~70C
	Storing temperature	-40C~75C
Moisture	Working moisture	10%~90%
	Storing moisture	5%~90%

Note

► USR-G800-42 router, supports Mobile & Unicom 2/3/4G and Telecom 4G networks

► USR-G800-41 router, support Mobile 2/3/4G networks

Consumption Parameter

All data is obtained from the test in the situation of full-speed working, one WIFI slave station, one LAN interface

connection, 4G visits outer net, 10Kbyte/s data transmission speed.

Test Items（4G normal working）	Power supply voltage	Average current	Maximum current
WIFI full-speed communication	DC12V	175mA	289mA
LAN interface full-speed communication	DC12V	169mA	245mA

Statistics for G800 at 12V power supply and full-speed working:

Average consumption 2.1W, maximum consumption 3.5W. Average current 175mA, maximum current 289mA.

2.3. Hardware Description

Hardware interface description is as below:

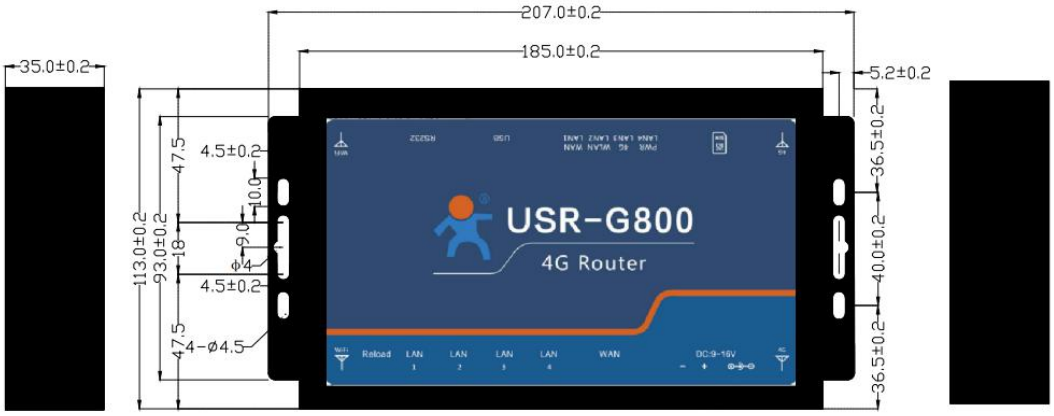
No.	Name	Remarks
1	DC power supply seat	Power supply scope DC:9~16V，standard 5.5*2.1 power supply seat
2	Power supply terminal	Power supply scope DC:9~16V，green，5.08-2
3	WAN interface	Wide area network.10/100Mbps，support Auto MDI/MDIX
4	LAN interface（1~4）	Local area network.10/100Mbps，support Auto MDI/MDIX
5	DB9 common port	RS232 interface，serial port transforms to ethernet network
6	USB interface	Reserved

7	Indicating light	8 status indicating lights，instruction can be found in 3.8 chapter, description for indicating light
8	SIM card seat	Drawer type SIM card card-support. If SIM card needs to be installed, a sharp object is needed to push one side yellow button to withdraw the card-support
9	Reload ky	Press for more than 3s and then release, recover to factory setting
10	WIFI antenna	2 wifi antennas, which can be found from pad pasting, separately besides Reload key and DB9
11	3/4G full frequency antenna	Antenna for 4G module, separately besides SIM card seat and electric socket

Note

►Difference between WIFI and 4G antenna. Please take notice of outgoing WIFI and 4G antenna (rod shape), there will be one-ring or two-ring symbol in the end of antenna, one-ring usually stands for 3/4G full frequency antenna, while two-ring usually stands for WIFI antenna. Please pay attention to avoid mistakes, picture as follow:

2.4. Size Description

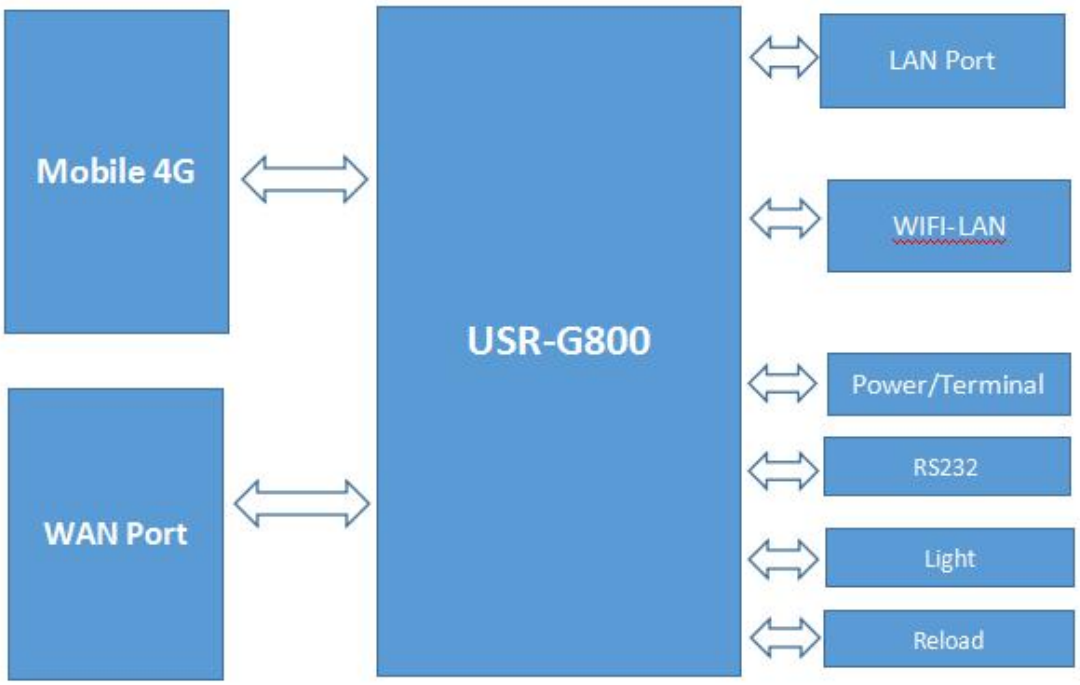


Note:

- Sheet metal hull, PCB is fastened onto the bottom case with screws
- There are fastening holes for C45 lead rail installing parts in the two sides
- Length, width and height, 207 * 113 * 35mm (electric source terminal, antenna or antenna seat are not included)

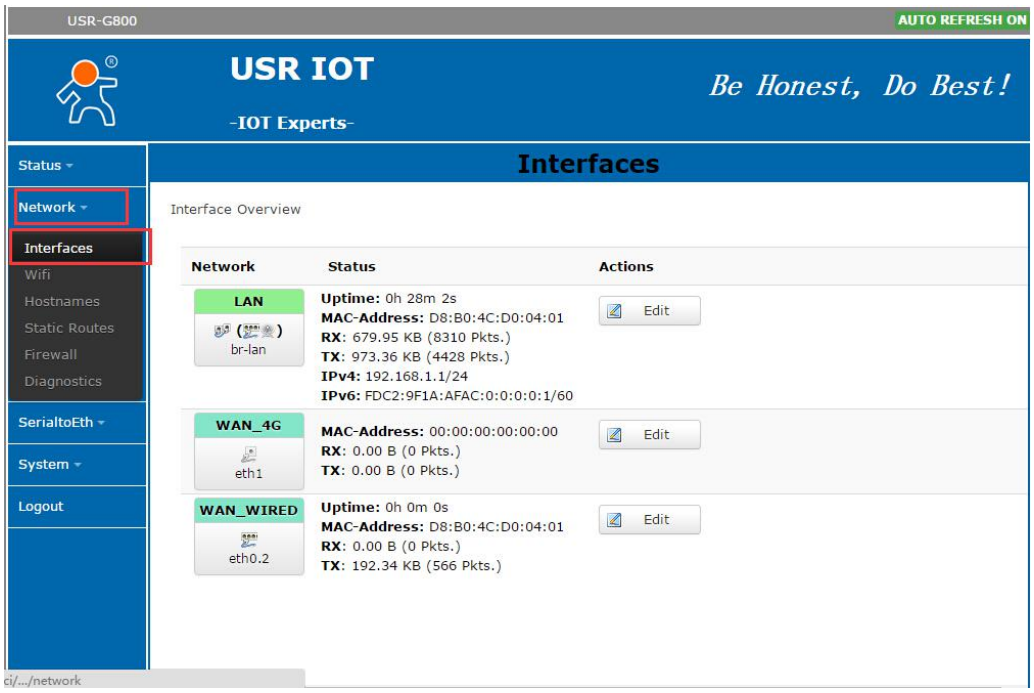
3. Product Function

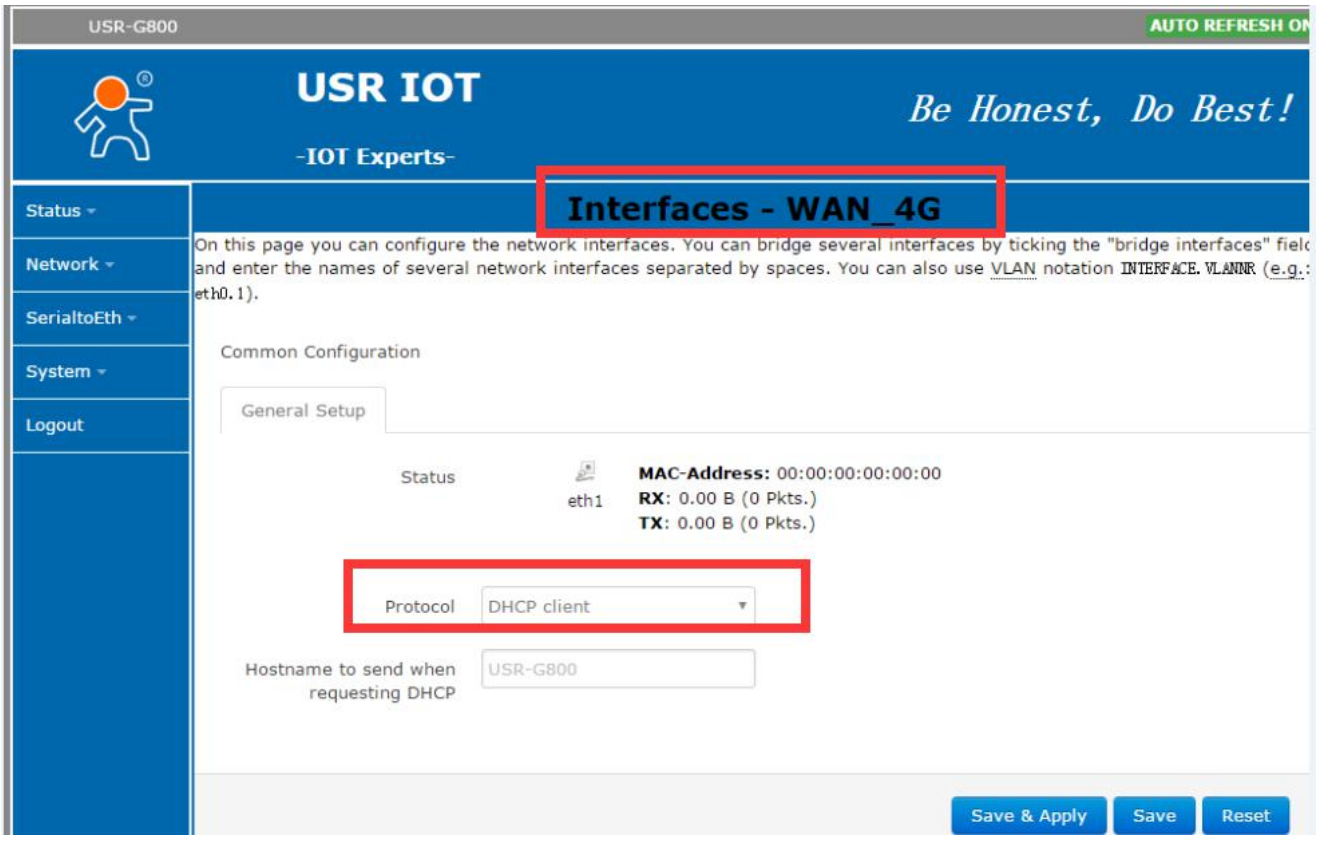
This chapter introduces USR-G800's possessed functions, the below drawing is the module functions' integral flow diagram.



3.1. Mobile 4G Interface

G800 supports all-the-way Mobile 4G communication module interface which can be used to visit outer networks.

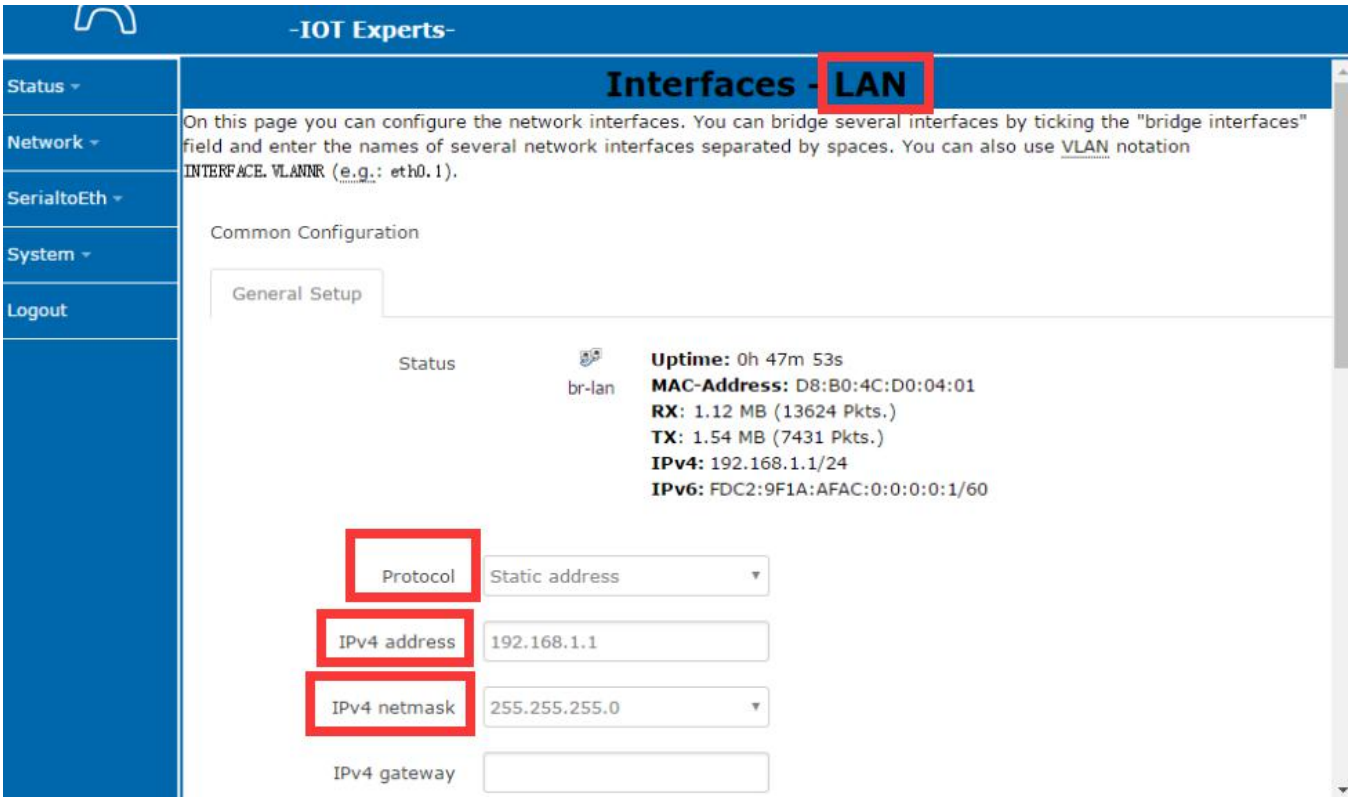

USR-G800
AUTO REFRESH ON
USR IOT
-IOT Experts-
Be Honest, Do Best!
Status
Network
Interfaces
Wifi
Hostnames
Static Routes
Firewall
Diagnostics
SerialtoEth
System
Logout
Interfaces
Interface Overview
Network
Status
Actions
LAN
br-lan
Uptime: 0h 28m 2s
MAC-Address: D8:B0:4C:D0:04:01
RX: 679.95 KB (8310 Pkts.)
TX: 973.36 KB (4428 Pkts.)
IPv4: 192.168.1.1/24
IPv6: FDC2:9F1A:AFAC:0:0:0:0:1/60
Edit
WAN_4G
eth1
MAC-Address: 00:00:00:00:00:00
RX: 0.00 B (0 Pkts.)
TX: 0.00 B (0 Pkts.)
Edit
WAN_WIRED
eth0.2
Uptime: 0h 0m 0s
MAC-Address: D8:B0:4C:D0:04:01
RX: 0.00 B (0 Pkts.)
TX: 192.34 KB (566 Pkts.)
Edit


USR-G800
AUTO REFRESH ON
USR IOT
-IOT Experts-
Be Honest, Do Best!
Status
Network
SerialtoEth
System
Logout
Interfaces - WAN_4G
On this page you can configure the network interfaces. You can bridge several interfaces by ticking the "bridge interfaces" field and enter the names of several network interfaces separated by spaces. You can also use VLAN notation INTERFACE.VLANNR (e.g.: eth0.1).
Common Configuration
General Setup
Status
eth1
MAC-Address: 00:00:00:00:00:00
RX: 0.00 B (0 Pkts.)
TX: 0.00 B (0 Pkts.)
Protocol
DHCP client
Hostname to send when requesting DHCP
USR-G800
Save & Apply
Save
Reset

<Instruction>

- Mini-PCIE hardware interface
- USR-G800-41 inner module (USR-G401t) can only support mobile 2G,3G,4G networks
- USR-G800-42's configured module (USR-G402tf) supports Mobile & Unicom 2/3/4G and Telecom 4G networks
- Protocol should be chosen for DHCP Javascript (default selection)
- Router will prefer using 4G network, and then wired WAN interface

3.2. LAN Interface



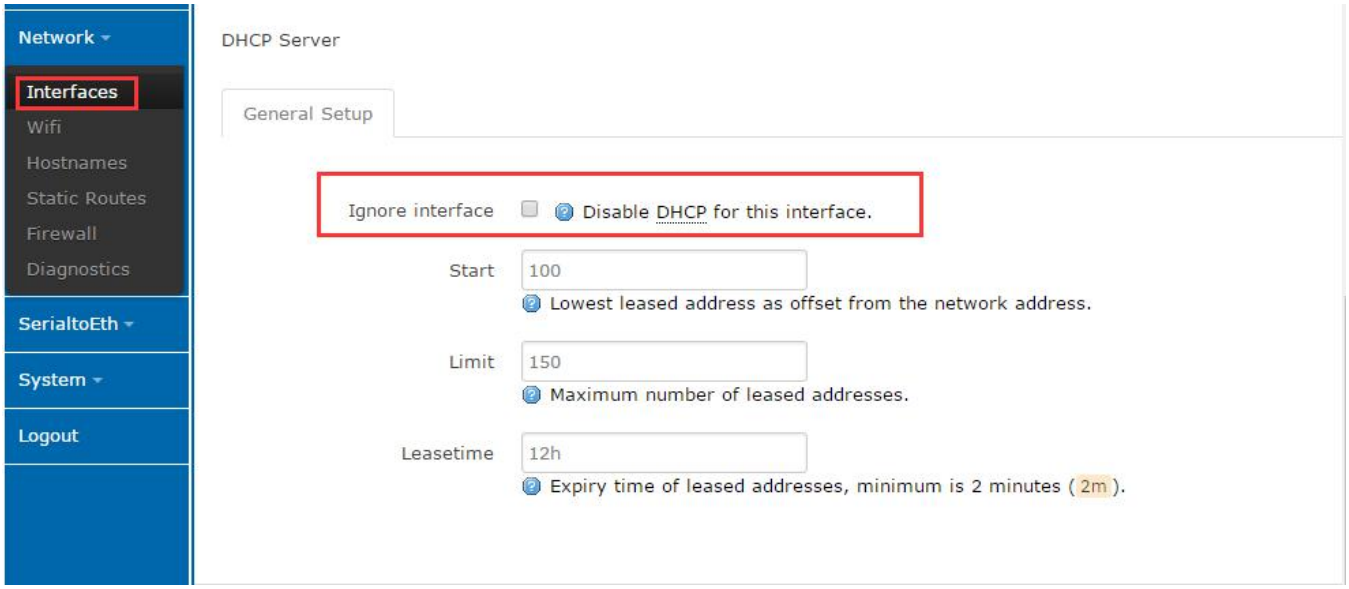
LAN interface is local area network.

<Instruction>

- 4 LAN interfaces
- Default static IP address 192.168.1.1, subnet mask 255.255.255.0. This parameter can be revised, for example, static IP can be revised to 192.168.2.1
- LAN interface supports DHCP server to open, can also be closed manually, DHCP address pool scope 100-150, default-lease-time is 12h
- LAN interface and WLAN wireless interface have mutual interchanging function

3.2.1. DHCP Function

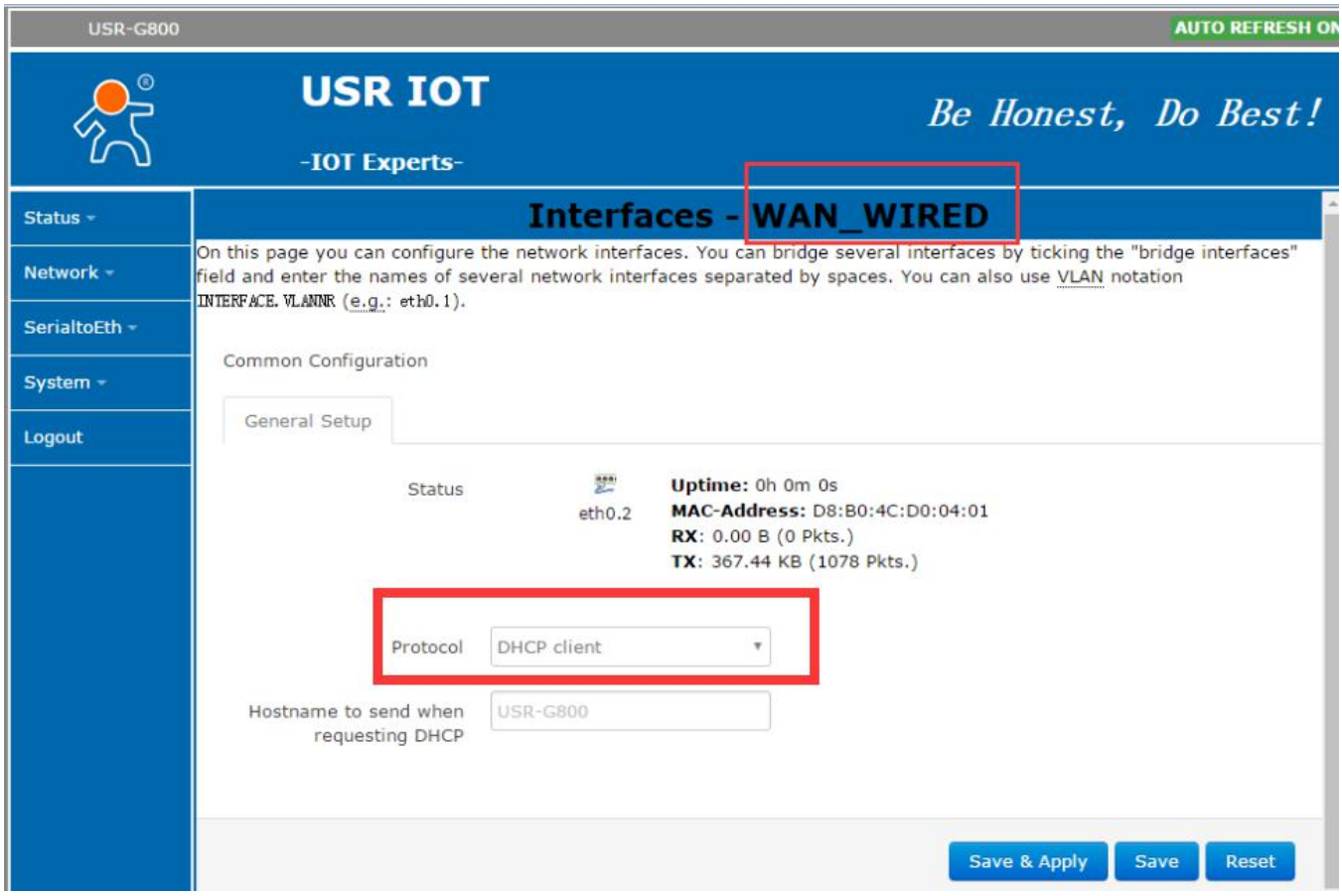
LAN interface's DHCP server function defaults to be open (can also be selected to close), all the network device connected to LAN interface can obtain IP address automatically.



<Instruction>

- Address of beginning and ending, and address default-lease-time of DHCP pool can be adjusted.
- DHCP default distributing scope 192.168.1.100 - 192.168.1.250.
- Default-lease-time is 12 hours

3.3. WAN Interface



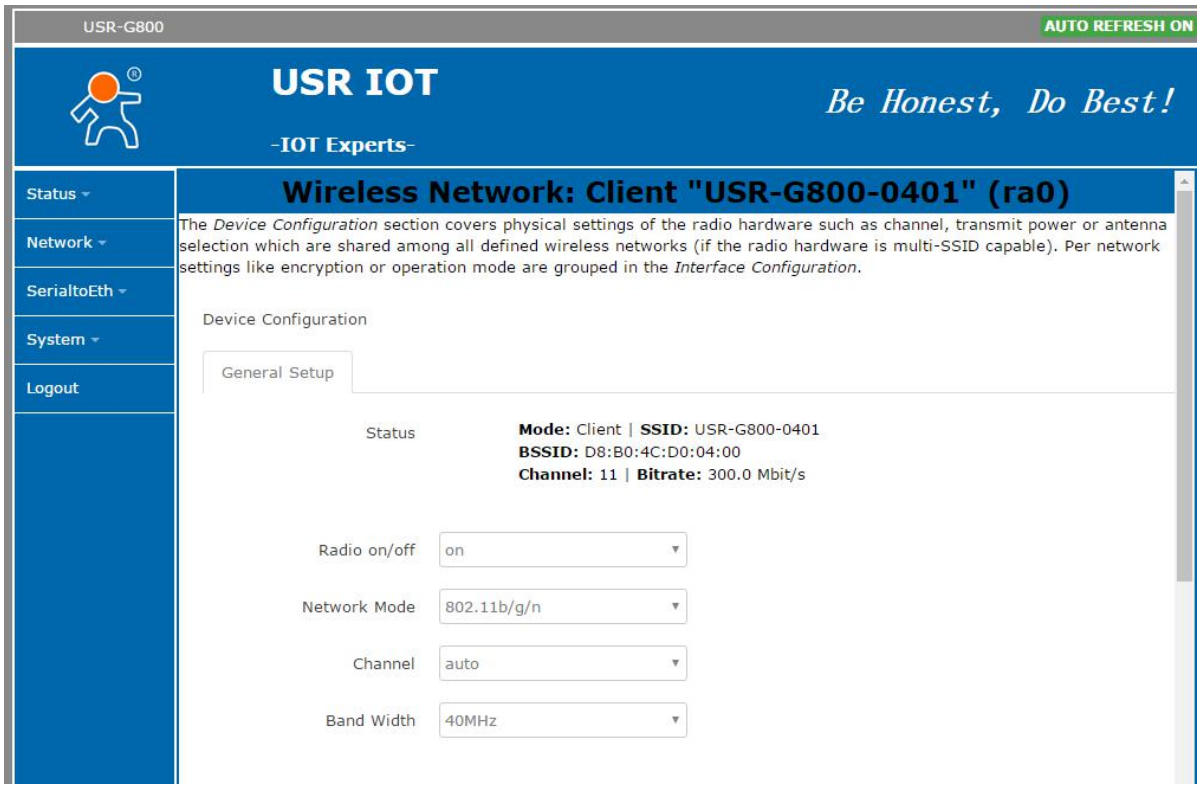
WAN interface is wide area network interface.

<Instruction>

- One wired WAN interface
- Support DHCP Client and static IP
- Default IP obtaining mode is DHCP client

3.4. WLAN Network

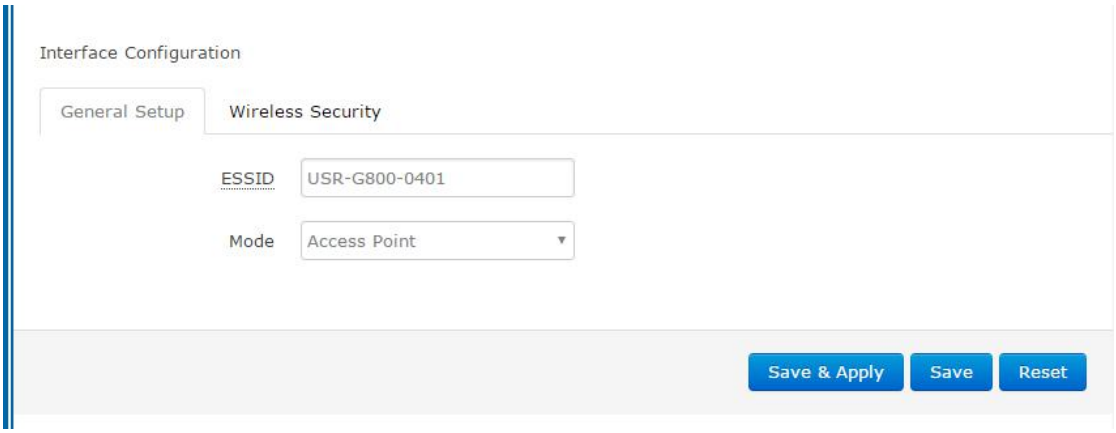
Local wireless local area network. Shown as the below drawing:



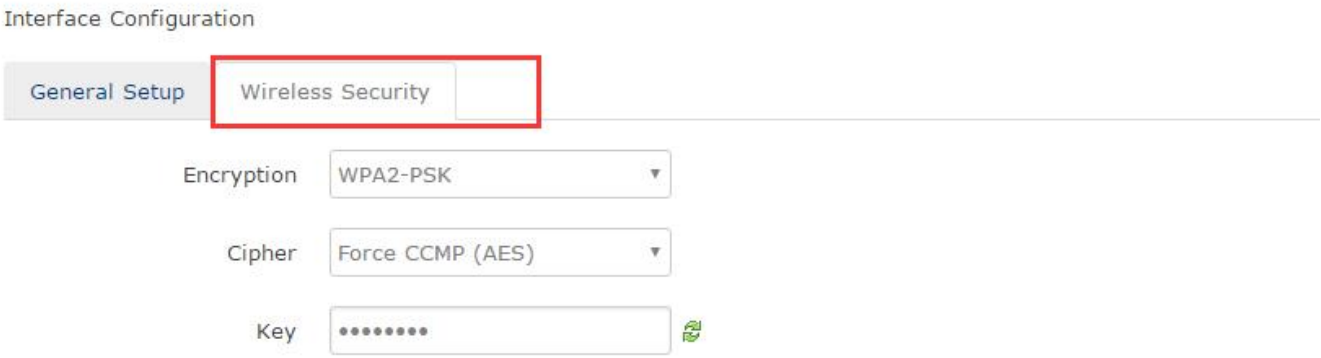
Default parameter is as below,

Default Parameter	Value
SSID Name	USR-G800-XXXX XXXX is MAC address
Wireless Password	12345678
Channel	Auto
Band Width	40MHz
Encryption	WPA2-PSK

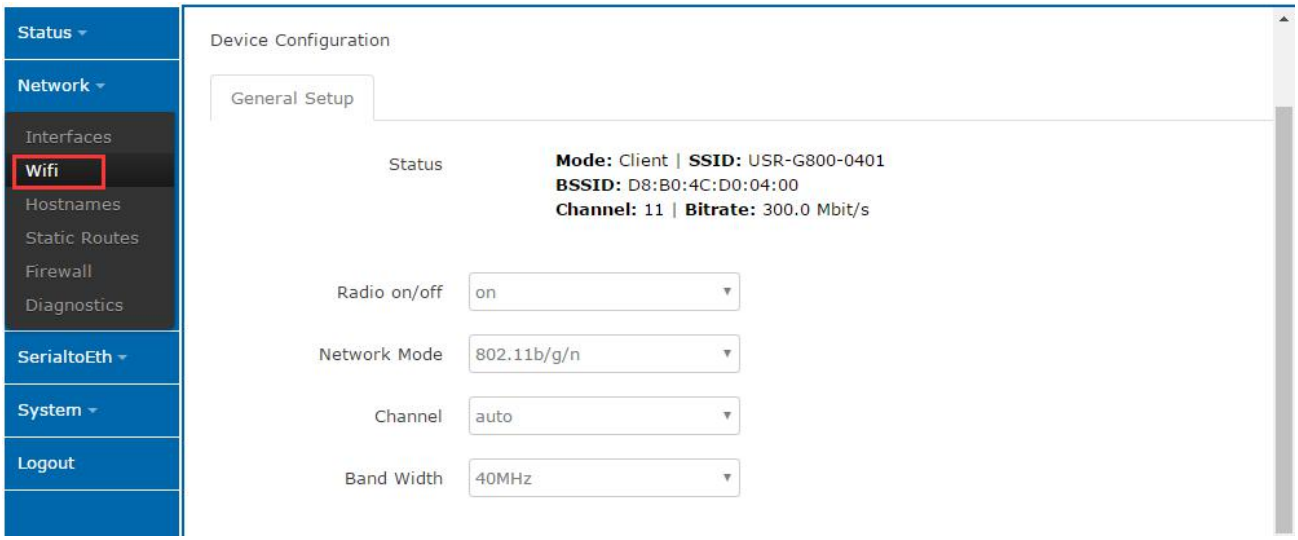
Revise SSID in the below position.



Revise wireless password in the below position,



In the below positions, revise if wireless function can be opened, wireless speed mode, channel selection and band width setting.



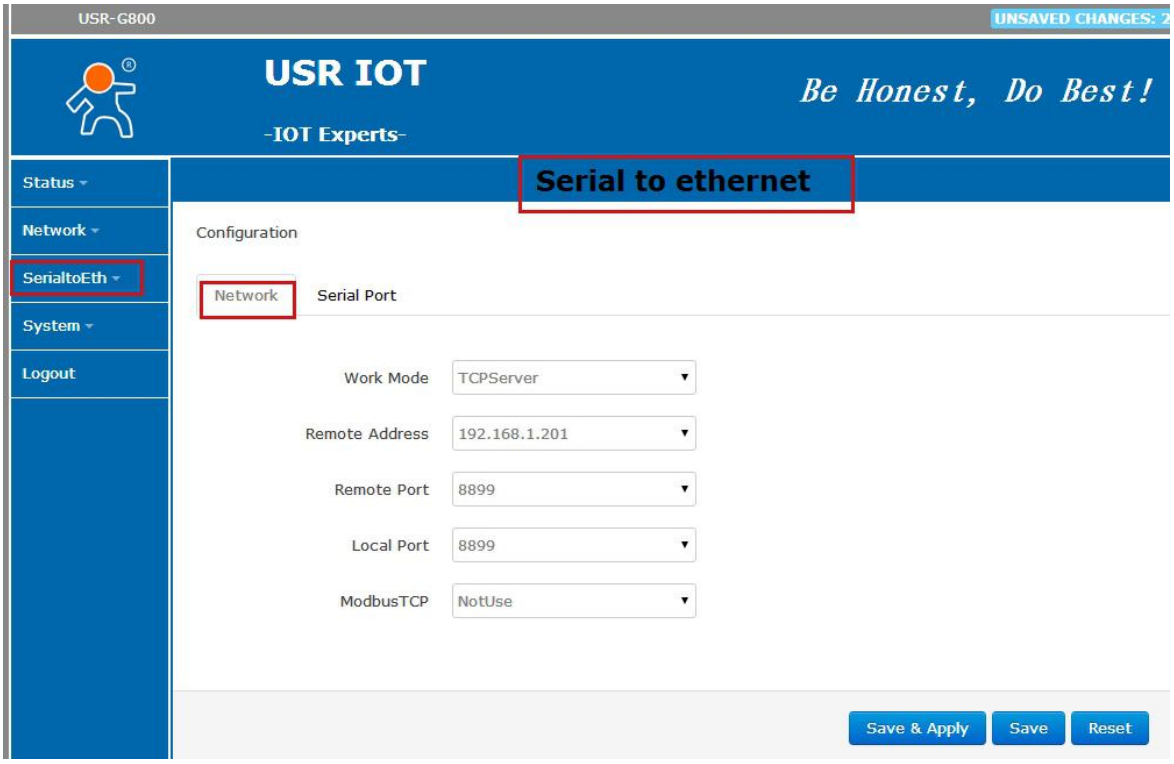
<Instruction>

- G800 router is one AP itself, other wireless terminal can be connected to WLAN network.
- Support max 24 wireless STA connection.
- This WLAN local area network and wired LAN interface have mutual interchanging mode

3.5. Serial to Ethernet Function

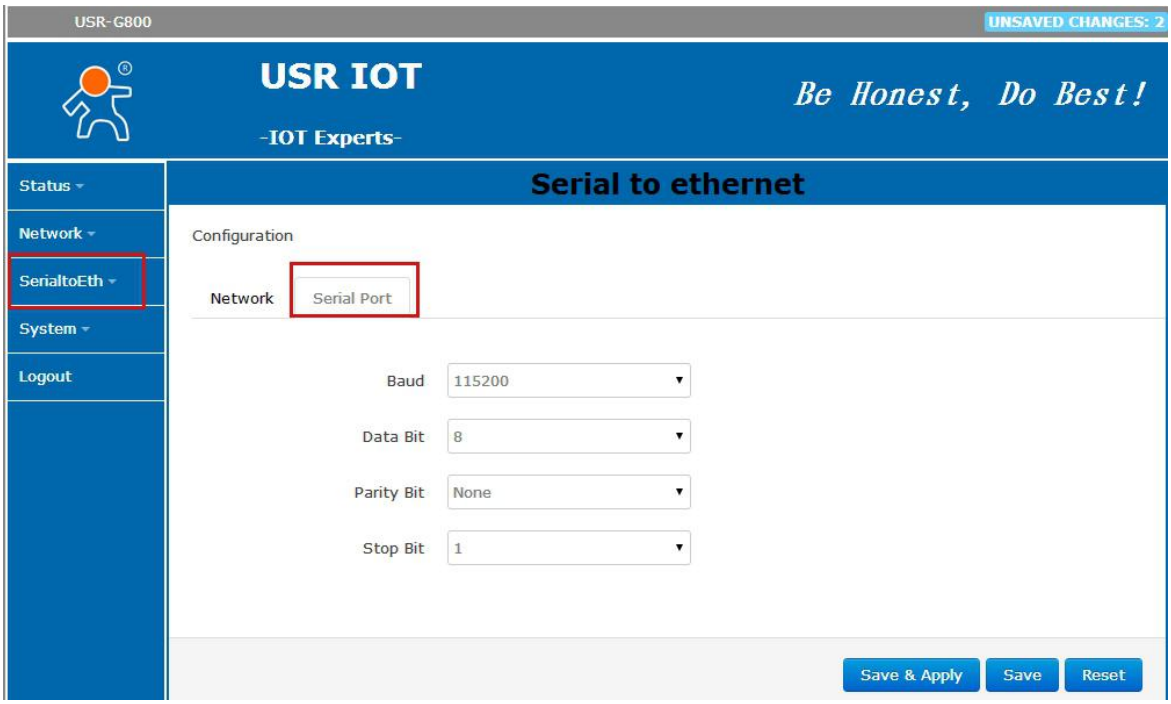
USR-G800 supports transparent transmission mode on serial port, data transmission between serial port and ethernet can be achieved, facilitate serial port device's networking.

Transparent transmission mode is a kind of data transmission with least complexity.



<Instruction>

- Four work mode in transparent transmission:
  TCP Server
  TCP Client
  UDP Server
  UDP Client
- Support Modbus TCP
- Band rate, data bit, parity bit and stop bit can be configured
- Serial port is RS232 interface (TXD, RXD, GND), hardware flow control is not supported



3.6. Serial Port Framing System

Default 50ms packing time, 1460 bites' packing length, can not be revised temporarily.

3.7. Reset Button

This button possesses two functions, judge according to the time of pressing down

►Press more than 5s and then release, stands for recovery to factory parameter setting, then restart automatically

►At the moment of restarting comes into force, all indicating lights will shine for 1 second, then extinct (except for power source indicating light, 4G indicating light)

3.8. Indicating Light

There are 8 indicating lights in all, meanings as below

Name	Meaning	Instruction
Power	Power Indicating Light	Blink all the time when power on
4G	Mobile Communication Indicating Light	USR-G800-41(G401t，supports Mobile 2/3/4G): Blink slowly with success start; blink quickly with intervals (blink quickly for several times, continue after pause) means connecting with networks; continuously quick blink means having connected to data network and started to communicate.

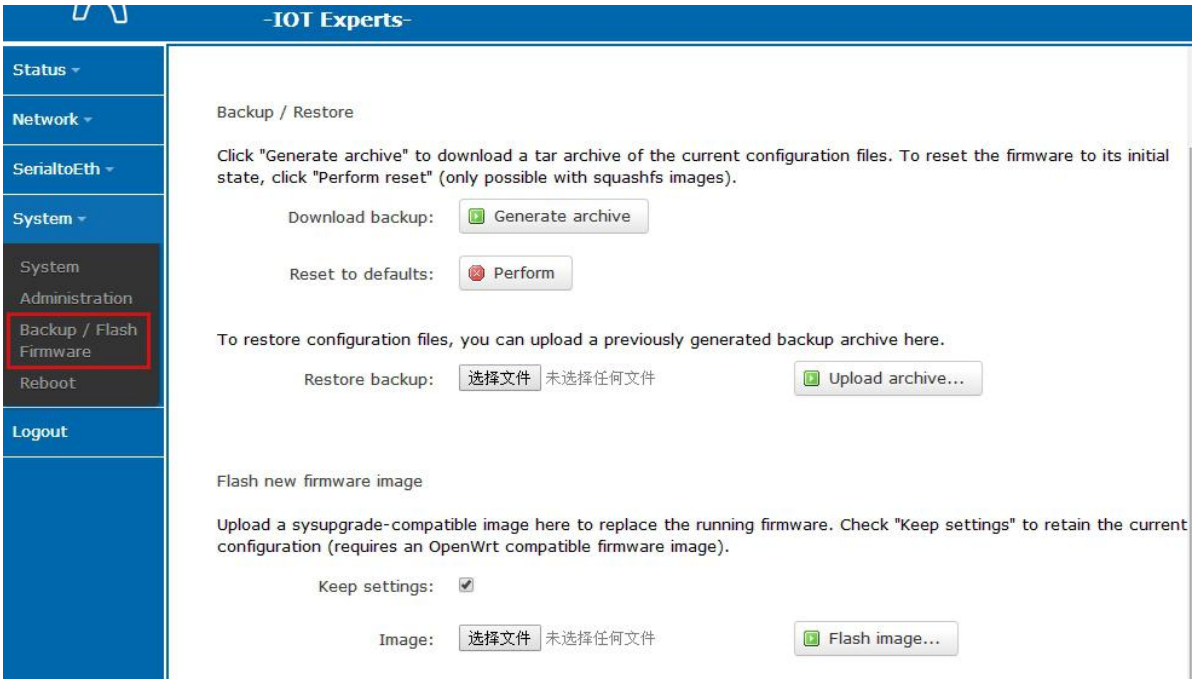
		USR-G800-42(G402tf，supports Mobile & Unicom 2/3/4G，Telecom 4G)： Not blink without registering to network, blink all the time with registering to network, blink for successful dial up access.
WLAN	WIFI Indicating Light	Blink all the time with successful starting of WIFI network, twinkle with STA connection or data receiving and sending
WAN	WAN port Indicating Light	Blink all the time with WAN interface cable insertion, twinkle with data
LAN1	LAN1 port Indicating Light	Blink all the time with LAN1 interface cable insertion, twinkle with data
LAN2	LAN2 port Indicating Light	Blink all the time with LAN2 interface cable insertion, twinkle with data
LAN3	LAN3 port Indicating Light	Blink all the time with LAN3 interface cable insertion, twinkle with data
LAN4	LAN4 port Indicating Light	Blink all the time with LAN4 interface cable insertion, twinkle with data

<Instruction>

- There is no indicating light on lan port seat of WAN and LAN, physical connection of lan port is indicated by WAN and LAN1-4 indicating lights
- The corresponding WAN/LAN indicating light will twinkle when cable is inserted and the network device on the other side is also working; it will not blink if only inserting the cable
- Power light will blink all the time

3.9. Firmware Update

USR-G800 supports on-line firmware update by webpage

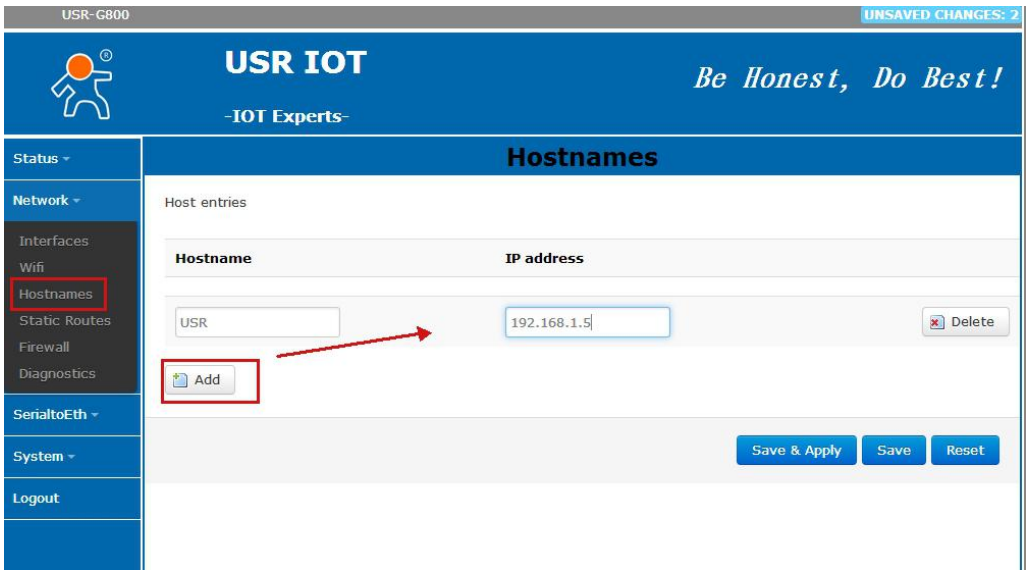


<Instruction>

- ► The process of firmware will last 30s-50s, please login the webpage after 30s
- ► Retention configuration or not can be selected
- ► No interruption of power supply or pulling out cable during the process of firmware burning

3.10. Special Function

3.10.1. Host Name Function



Router can realize domain name resolution inside of the local area network. Set the host computer name which you want to fill, such as “usr-pc-linux”, as host computer name, ip address 192.168.0.9. Then mapping relation from host computer name to IP address can be realized, i.e. local area network domain name resolution.

Note: This function can only be effective after restarting the router.

3.10.2. Network Diagnosing Function

Network Diagnosing Function

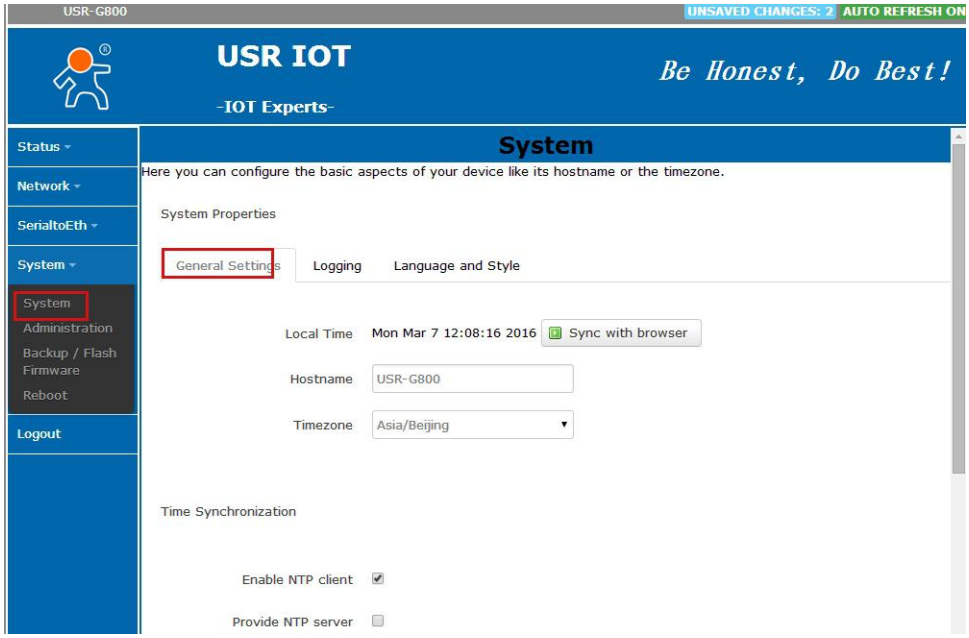
Router’s on-line diagnosing function, including Ping tools, route analyzing tools, DNS checking tools.

Ping tool, can make ping test for a specific address directly in the router end.

Route analyzing tool, can obtain the routing path when visiting an address.

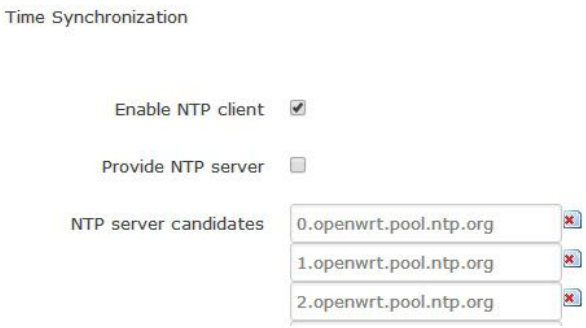
DNS checking tool, can resolve the domain name to IP address.

3.10.3. Configure router Host name and Time Zone



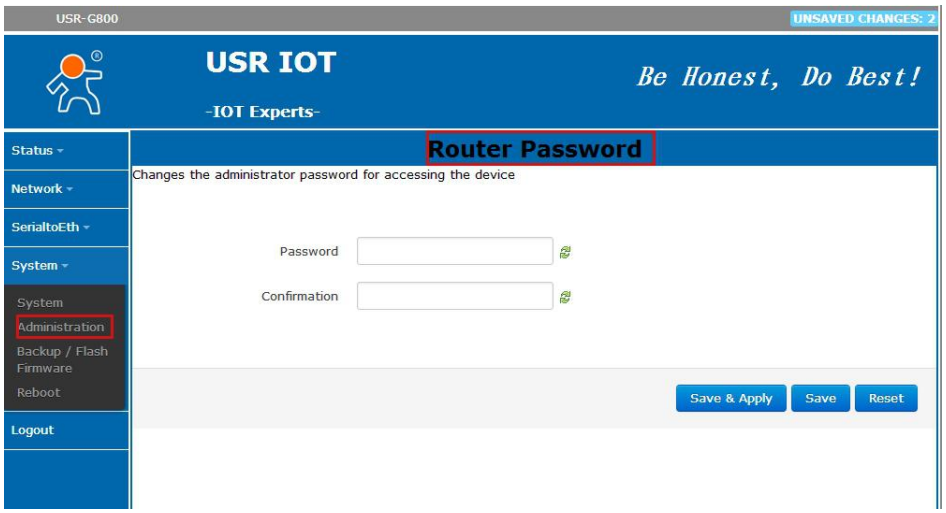
Router’s own default host name is USR-G800, time zone is Beijing Time Zone.

3.10.4. NTP Parameter Set



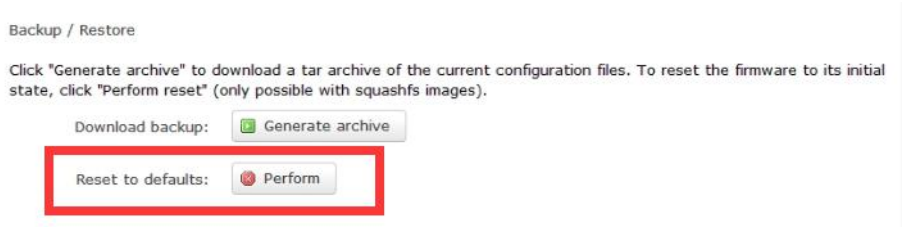
Router can make network timing, default starting NTP Javascript function. There is candidate server address setting.

3.10.5. Username and Password Setting



Default password can be set, default password is root, user's name can not be set. This password is mainly used as webpage server's login password.

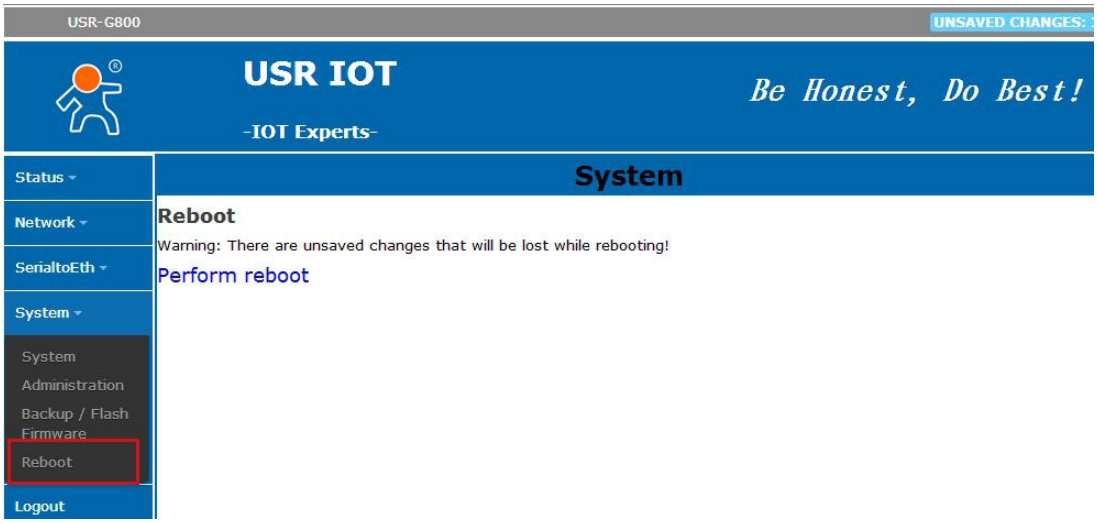
3.10.6. Reset by webpage



Click the button for factory reset.

- Download backups, means downloading the current router's parameter configuration files which can be used for backing up parameter setting.
- Upload backups, means backed-up parameter files can be uploaded into router and coming into force.

3.10.7. Restart



Click the button to restart the router. Restarting time is same as router's power on starting time, completely and successfully start after about 30-40 seconds.

4. Setting Method

4.1. Webpage Configuration

For the first time of using USR-G800 module, some configuration is required for this module. PC connects with USR-G800's LAN interface, or connect to WLAN wireless, then use web to manage page configuration. For default situations, USR-G800's AP default name is USR-G800-xxxx, IP address and user's name, password are as below

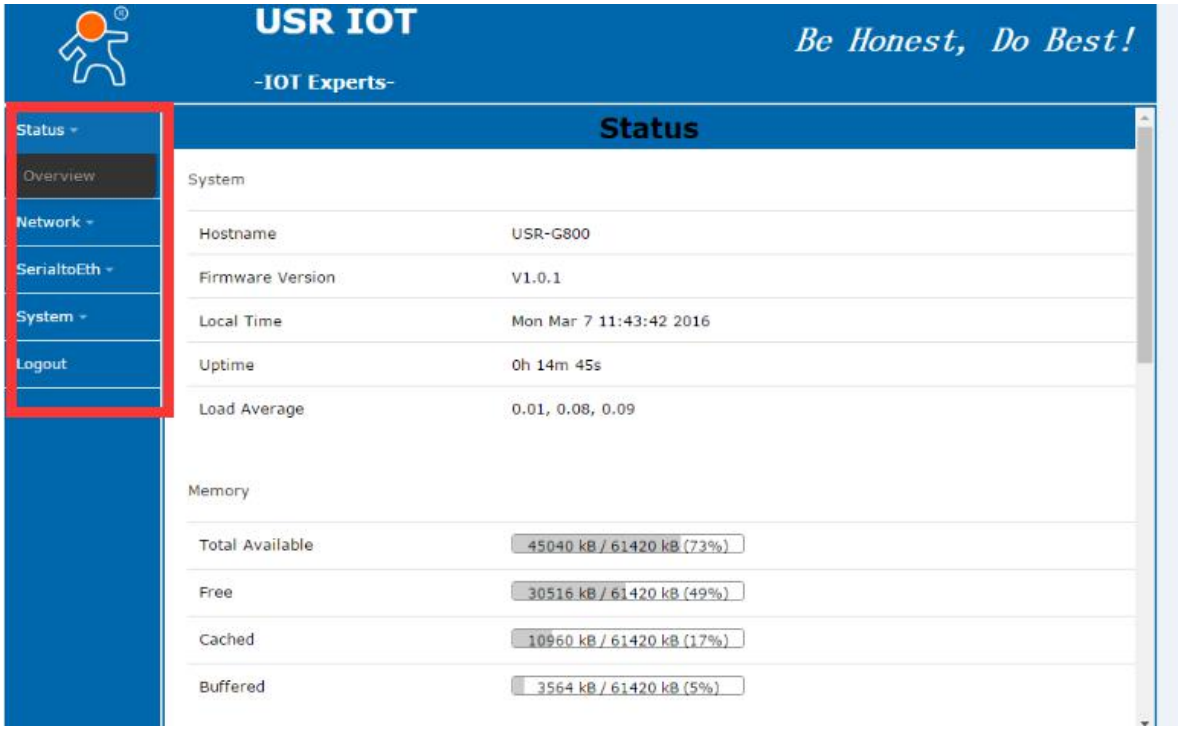
Table 1 USR-G800 network default configuration table

Parameter	Default Configuration
SSID	USR-G800-XXXX
LAN Interface IP Address	192.168.1.1
User's Name	root
Password	root
Wireless Password	12345678

Firstly, use PC's wireless network adapter, G800's default SSID is USR-G800-xxxx, operate PC to join this wireless network, default password is 12345678.

After wireless connection, open the browser, input **http://192.168.1.1** in address field and click Enter. Fill in user's name and password (both of them is root), then click confirm login.

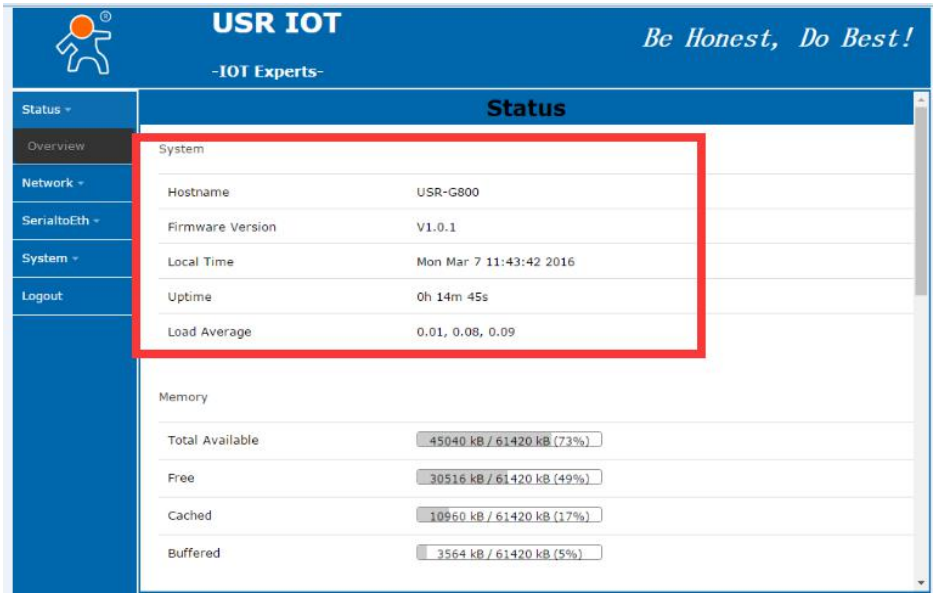
Web page will appear USR-G800's managing page. Default language is Chinese for USR-G800 managing page.



4.2. Webpage Introduction

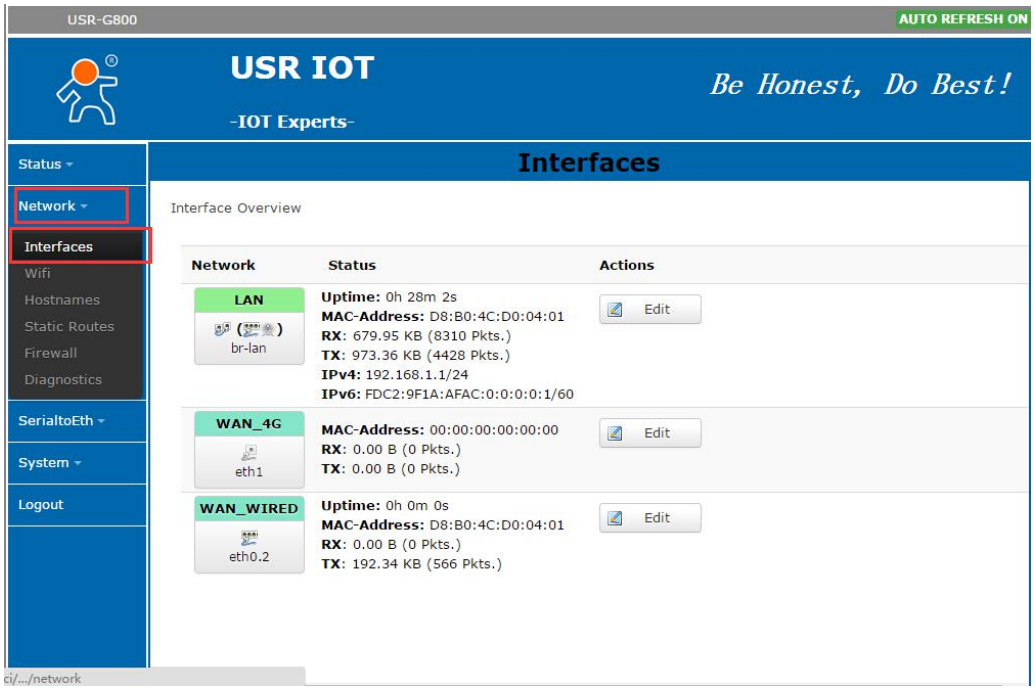
Tab page in the left side of web page, setting module's some parameter in details can be realized.

- Status page



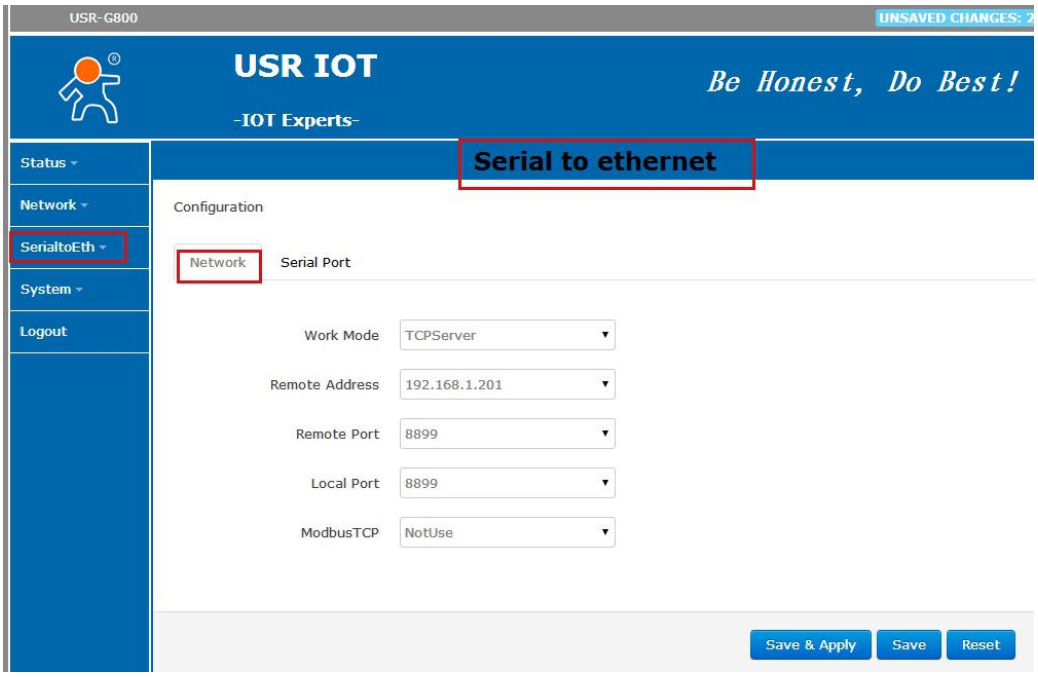
Status page mainly shows device's name information, firmware version, current running state, firewall and routing table display, etc.

Network interface page:



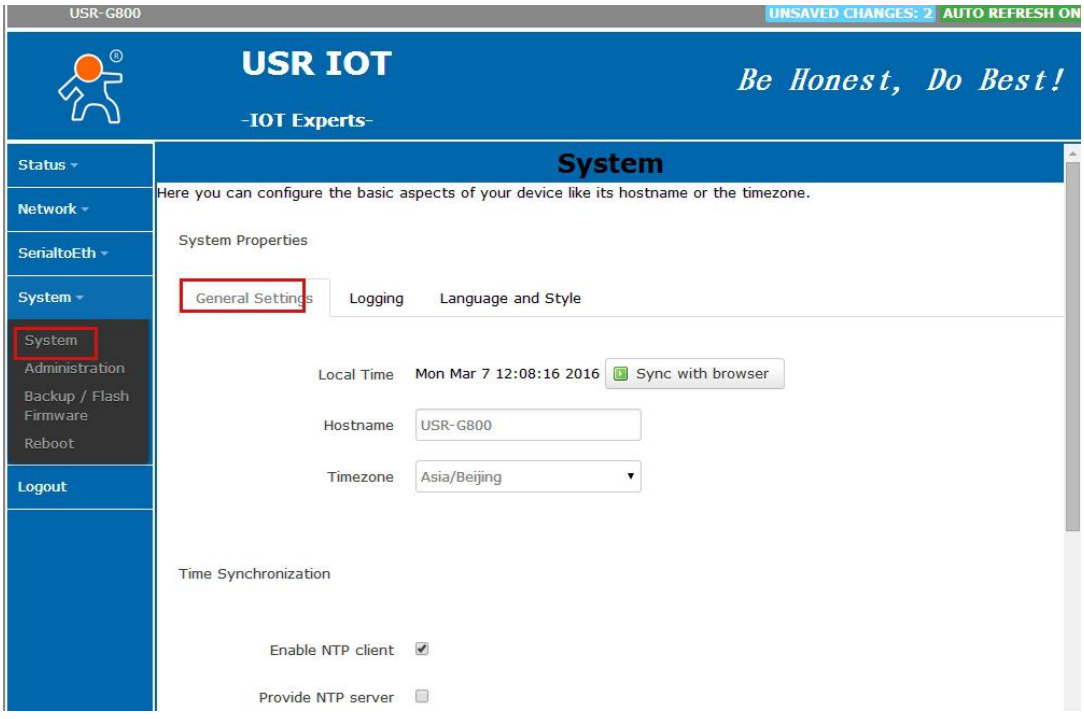
Network page, is mainly interface device (including setting of LAN interface, WAN interface), WIFI wireless parameter & DHCP/DNS information settings. Mainly device's running parameter setting.

- Serial to Webpage



Mainly parameter setting for serial port transforming to network, including working mode, local port, target address, and serial port parameter setting.

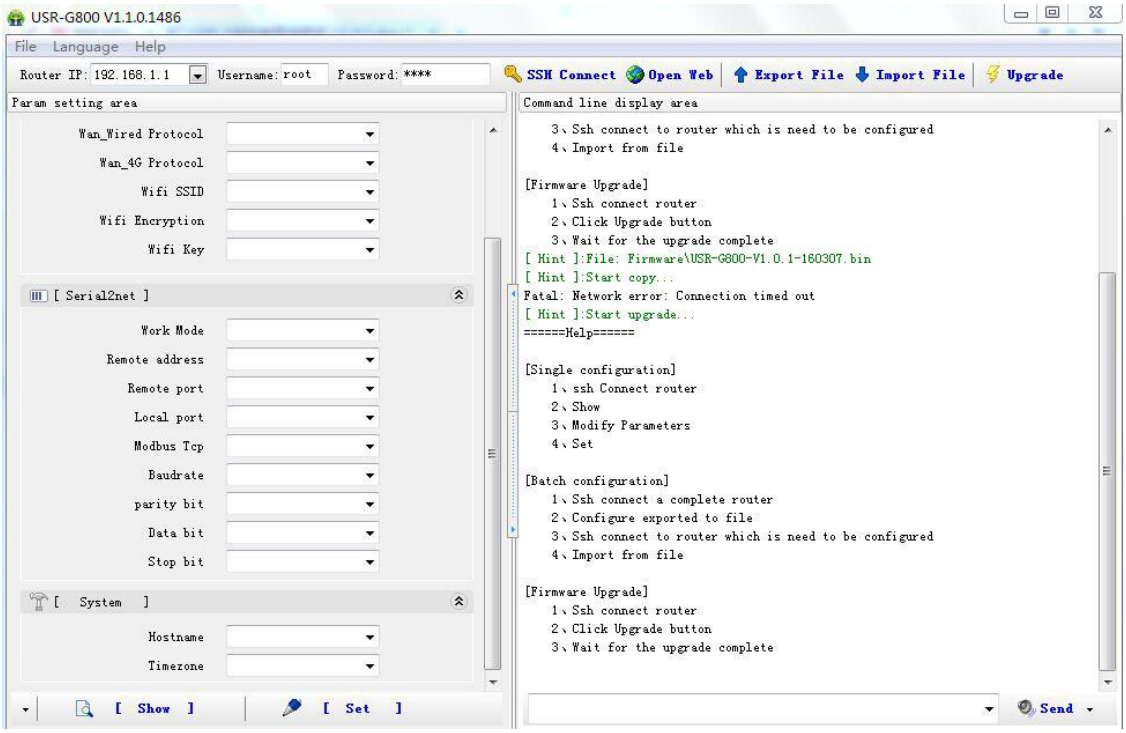
- System page



System page, is mainly login password, time setting, and firmware update and restart, etc.

4.3. Setup Software

Configured setting software USR-G800-SETUP.

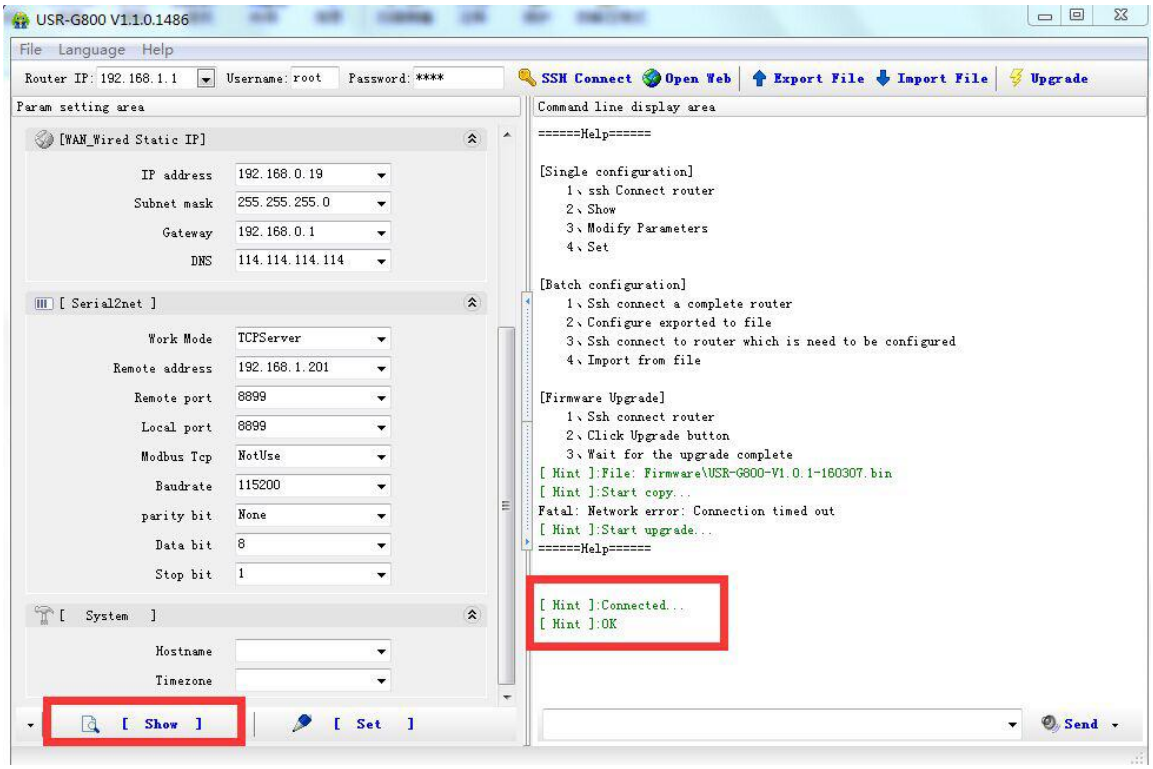


Setting process is as below

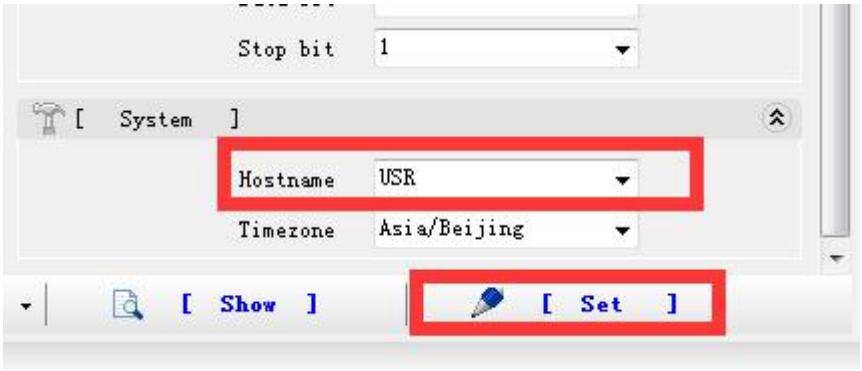
► Double click setting software. Note: PC must be placed under LAN interface

► Click SSH connection, “Connecting…” will be hinted, “Connected” will be hinted for successful connection

► Click “Show” button, if reading successfully, there will be corresponding data update in the left side and “OK” will be hinted in the right side

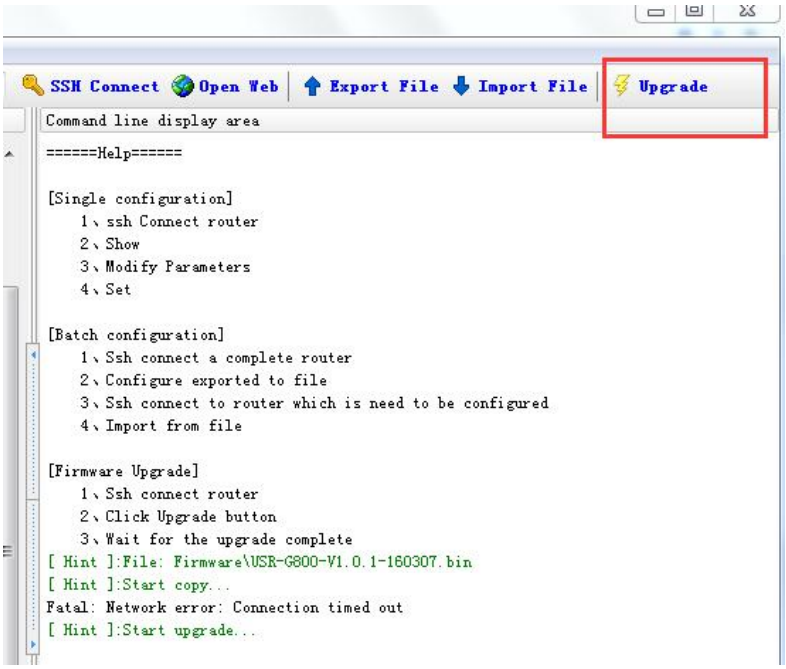


► Please edit parameter according to your own need, for example, default host name can be revised to “youren”

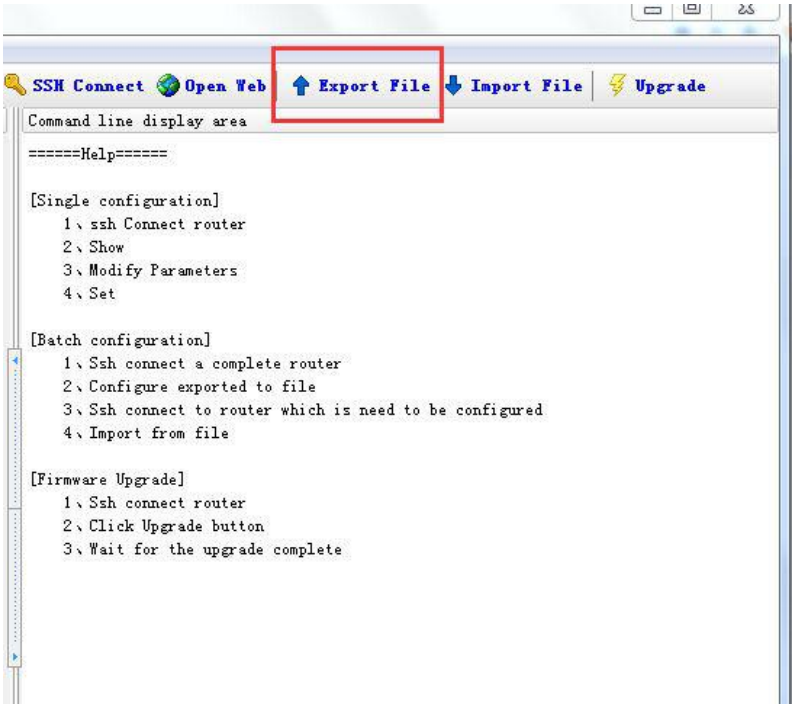


► Parameter setting becomes effective. After parameter setting, please restart the device to make configuration completely be effective (can also input “reboot” in send box to realize long-distance restart).

► Firmware update. Please click the button “Update” in the top right corner, to update module’s firmware, firmware is stored under “Root Directory/Firmware”



► Export and Import for parameter configuration files. Export and Import configuration files are under “Root Directory/etc/config”



5. Contact

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7. Update

2015-10-27	V1.0.1 version released
2016-01-12	V1.0.2 version add the description of detailed function
2016-03-22	V1.0.3 version add size picture